IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:)	Confirmation: 4713
Adrian Crisan et al.)	
)	
Application Number: 10/029,766)	Art Unit: 2192
)	
Filing Date: December 18, 2001)	Examiner: Romano, John J.
)	
Title: **Hardware ROM Upgrade**)	Docket No.: 200302293-1
Through an Internet or Intranet)	
Service)	
)	

DECLARATION OF DAVID BURCKHARTT
PURSUANT TO 37 C.F.R. §1.131

Commissioner of Patents
Alexandria, VA 22313-1450

Sir,

I, David Burckhartt, hereby declare that:

1) The invention embodied in the above-identified patent application is directed to systems and methods for the upgrade of a ROM update in a computer system through an Internet or intranet service.

2) I am advised that the United States Patent and Trademark Office has rejected one or more claims presently pending in the above-identified patent application based, at least in part, upon U.S. Patent Application Publication No. 2003/0110369 A1 filed by *Fish et al.*, (hereafter *"Fish"*). I am further advised that the effective priority date of *Fish* is December 11, 2001.

3)   The present invention as set forth in the claims of the above-identified patent application was conceived by Adrian Crisan, my co-inventor, and me at least as early as December 11, 2001. As evidence of the conception of the present invention, a copy of a completed Invention Disclosure form that was filled out by us and submitted to our employer prior to December 11, 2001 is attached hereto as "Exhibit A." The Invention Disclosure of Exhibit A supports the claims of the above-captioned patent application. Dates and sensitive information (e.g., home addresses, Employee numbers, *etc.*) have been redacted in the document in accordance with applicable USPTO rules.

4)   On December 10, 2001, the legal assistant for our patent attorneys emailed a draft of the above-referenced patent application to Adrian Crisan and me for review. A copy of the email is attached hereto as "Exhibit B."

5)   Sometime between Tuesday, December 11, 2001 and Friday, December 14, 2001, Adrian Crisan and I reviewed the draft patent application and provided feedback regarding the draft application to our patent attorneys.

6)   After the weekend, on Monday, December 17, 2001, both Adrian Crisan and I approved the patent application for filing with the United States Patent and Trademark Office as evidenced by the Declaration signed by both Adrian Crisan and me on December 17, 2001, a copy of which is attached hereto as "Exhibit C."

I hereby declare that all statements made herein are of my own knowledge are true and that all statements are made on information and belief and are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.
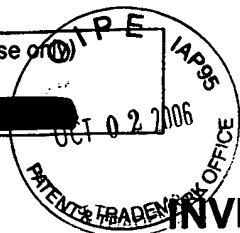
Signed:

David Burckhartt

9-25-06

Date

(for Legal Dept. use only)

ID No: ▮▮▮▮▮▮

Date Received: ▮▮▮▮▮

OCT 0 2 2006

INVENTION DISCLOSURE

PREPARED AND SUBMITTED AT THE REQUEST AND DIRECTION OF AN ATTORNEY

RETURN COMPLETED FORM TO DIANE STRONG VIA E-MAIL TO DIANE.STRONG@COMPAQ.COM

1. **DESCRIPTIVE TITLE OF INVENTION:** <u>Hardware ROM Upgrade through an Internet or Intranet Service</u>

2. **INVENTOR (S):** More than two? ☐ Yes ☒ No (If more than two, use last page.)

A.

Last Name	Given First Name	Nickname (if any)	Middle Initial/Name
Crisan	Adrian		
Home Street Address		Home Phone	Pager Number
▮▮▮▮▮		▮▮▮▮▮	
City	State	Zip	Citizenship
▮▮▮	▮▮	▮▮▮	▮▮▮
Work Phone	Work Fax	Mail Code	Employee #
▮▮▮▮	▮▮▮▮	▮▮▮	▮▮▮
Name of Supervisor		Name of Employer (if NOT an employee of Compaq)	
▮▮▮▮			

B.

Last Name	Given First Name	Nickname (if any)	Middle Initial/Name
Burckhartt	David		
Home Street Address		Home Phone	Pager Number
███████████		███████████	
City	State	Zip	Citizenship
██████	████	█████	████
Work Phone	Work Fax	Mail Code	Employee #
██████████		████████	████████
Name of Supervisor		Name of Employer (if NOT an employee of Compaq)	
████████████			

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3. **CONCEPTION OF INVENTION:**

   A. When did you first think of this invention? ███████████

   B. Date of first written description? ███████████

   C. Please attach the first written description. (If submitting in electronic format, please scan all attachments and send).

   D. If you can not send the first written description, please explain why and state where it can be found. _____

   E. Please list the name of others in Compaq to whom you've described the invention:
       _____

4. **IMPLEMENTING THE INVENTION**

   A. Has the invention been implemented? ██████████████████
       (Implementations can include physical prototypes, software, models, and simulations).

B.   If implemented, please do not destroy, alter, or modify the implementation(s) without the authorization of the Compaq Legal Department, and answer the following questions for each implementation.
  i.   When was it implemented? _____
  ii. Where is the implementation now? (Attach or scan and send photograph, if possible)
  iii. H as the implementation been tested? _____
  iv. If so, was the test successful? _____

5.   USE OR SALE OF INVENTION:

A.   Has this been or will this be incorporated into a Compaq product? ☐ Yes ☐ No
If so, for each such product identify:
  i.   When was it or will it be incorporated into the product? _____
  ii.   Code name: _____
  iii. Street name: _____

B.   Has the invention been offered for sale or sold to anyone (e.g. an end user, vendor, reseller, partner, etc.) ███████████████████
  i.   If so, when: _____
  ii. If so, to whom (name of company or individual): _____

C.   If you don't know whether the invention has been offered for sale or sold, please provide the name of the best person to contact to determine when the invention has been or will be offered for sale or sold: _____

> **NOTE:** Please inform Compaq Legal immediately if, in the future, any of your answers under this Section 5 change so that we have ample opportunity to protect the invention within the time limits set out by law.

6.   DISCLOSURE OF INVENTION TO OTHERS

A.   Has a disclosure of the invention been made to any person(s) who is **NOT** a Compaq employee (including contractor, temporary, vendor, reseller, or partner and including conference presentations or journal articles)?
☐ Yes   ☒ No   ☐ Don't know

B.   If a disclosure was made, when was it made? _____

C.   To whom was the disclosure made? _____

D.   Was the disclosure made under an obligation of confidence? (e.g. Nondisclosure Agreement)
☐ Yes   ☐ No   ☐ Don't know

7.   **DESCRIPTION OF THE INVENTION** (continue on extra sheets as necessary)

     A.   To what type of technology does your invention relate? (Check all that apply)

CPU Technologies
- ☐ Keyboard/Mouse/Other Input Device
- ☐ Graphics
- ☐ Architecture
- ☐ Audio
- ☐ Memory
- ☐ Buses (ISA, EISA, PCI, AGP, other)
- ☐ Power Supplies/Batteries
- ☐ Other: _____

Communications Technologies
- ☐ Network Interface Card
- ☐ Hubs/Concentrators
- ☐ Routers
- ☐ Switches
- ☐ Modems
- ☐ Remote Access
- ☐ Other: _____

Peripherals Technologies
- ☐ Monitors/Screens
- ☐ CD-ROM
- ☐ DVD
- ☐ Tape Drives
- ☐ Disk Storage Systems
- ☐ Disk Controllers
- ☐ Printers
- ☐ Storage
- ☐ Other: _____

Feature/Software Technologies
- ☐ Mulitprocessor
- ☐ Fault Tolerance
- ☐ Remote Control
- ☐ Power Management
- ☐ Security
- ☐ Intelligent Manageability
- ☐ Smartstart
- ☐ Insight Manager
- ☒ Other   Remote ROM Upgrades _____

Other
- ☐ Manufacturing Processes
- ☐ Mechanical (functional)
- ☐ Mechanical (ornamental)
- ☐ PC/TV
- ☐ Racks
- ☐ Other: _____

     B.   Describe the general subject matter of the invention.
This invention deals with the continuous updating of a computer's ROM, regardless of the operating system that is installed on the system. This invention requires an Internet connection (such as a broadband connection), and an Internet service to which the computer systems connect (or an Intranet service in large Enterprises).

     C.   Describe the particular problem faced by those working in the subject matter area.
Today, most ROM updates are reactive. This means that a user or an IT administrator in an Enterprise must know that a ROM update exists for their system. Once it is known that the ROM exists, the ROM must be flashed. Today, the only flashing mechanisms that are available are mechanisms that require either a floppy, the remote booting of a machine, or through tools that are OS dependent (meaning that there are no Linux or other UNIX flavor remote ROM flash tools available).
All of these methods are cumbersome and are reactive, not proactive. In most cases, the ROM is upgraded to resolve issues with the system and should therefore be implemented as soon as possible.

     D.   Describe the old method(s) of performing the functions of the invention.
First of all, the biggest problem faced by the users is the knowledge that a ROM upgrade exists for their system. In most cases, users find out about the upgrades through phone calls to our support organization. The lucky ones have gone to the Compaq web site or have downloaded and used the Compaq Active Update tool that works only on Windows systems. In either case, the users have to have prior knowledge of their

system and several system characteristics that may be foreign.

IT organizations that use SSM and the Support Software CD may have an easier way of locating their ROMs since the SSM tool does a lot of the detection work. However, this tool also works only on certain versions of Windows Operating Systems.

Assuming that the user has determined that a new ROM is required, and the user downloads that ROM, the current ROM flash methods are Floppy disk, using SSM with the appropriate ROM image, or through Enterprise tools such as Altiris Express. Either way, these methods are very limiting or coslty to implement.

E.   Why is the invention better than these old approaches?

This invention's power is in it's simplicity. The customer is not required to have any prior knowledge of their system characteristic or to implement any infrastructures to deal with ROM upgrades. The only thing that is required is for the customer to have at least a broadband connection to the Internet (implementing this invention through a modem and phone line is possible but not recommended because of the additional code required to support the modem protocols).

The idea is that when a computer is turned on, it connected to an Internet Service hosted by Compaq, determines if a new ROM is available for the system, downloads the new ROM if one exists, and installs the ROM. All of this happens before the operating system is booted.

There are several advantages to this method.

First, the user does not have to find out reactively that a new ROM is required before they can upgrade the OS or to resolve some other problem they have. As soon as the ROM is available, the user will have it installed on their system without their assistance. Of course user permission to install the ROM is required.

Second, the ROM upgrade is simple and painless. There is no need to create an infrastructure or to create floppy disks. The only thing that the user has to do is to accept the new ROM.

Third, the ROM upgrade takes place as soon as the new ROMs are released. This will significantly reduce the suport calls that are generated because the user is using an old ROM.

Fourth, the ROM upgrades are operating system agnostic. The advantage of this is the fact that remote ROM upgrades for non-Windows operating systems are not enabled. Additionally, if a new OS installation requires a new ROM, the user does not have to call Tech Support to find that out after they tried to install the ROM.

Fifth, the ROM upgrade mechanism can be used by home users by using the Compaq Internet service, or by Enterprise organizations by setting up their own remote update servers.

Sixth, this invention can be used to configure ROM settings remotely as well or to perform other pre-OS activities that need to be implemented.

F.   Attach at least one drawing or sketch of the invention if available.

(Attach or scan and send drawing or sketch in a separate document)

G.   Describe the invention, how it is used, and how it operates.

The idea is failry simple and it can probably be implemented using a lot of the Network Boot ROM that is already available in current computer ROMs.

Basically, when the ROM boots, if a DHCP address can be obtained, then a connection to the network exists. There are several mechanisms in place already that obtain an IP

address from a DHCP server and perform network operations (such as TFTP or BOOTP operations).

This invention requires that an HTTP PUT and GET operation is enabled in the ROM to allow the ROM to perform a put operation of a SOAP packet to a URL.

Since most of the system information required for a ROM upgrade are already known and most likely are fixed, the SOAP packet can be available very quickly. I will provide a SOAP packet example later in this document.

Once the SOAP packet is available with the system information, an HTTP PUT operation is performed. Since the Compaq services URL is already known to the ROM (it is fixed in the factory but can be changed later by the ROM update or through F10 Setup), the operation will take place by connecting to the Compaq service.

The service responds to the SOAP message with a standard SOAP message response that contains the compressed, encrypted, digitally signed ROM image in the body.

To ensure that the ROM service is legitimate and that the ROM image comes from Compaq and has not been tampered with, a PKI security mechanism can be created. Basically, a Public/Private key can be established for the ROM update process. Any ROM image that is compatible with this sytem is encrypted with the Compaq private key and the ROM Update Public key. When the ROM receives and image, it decrypts it with the ROM Update Private key (which is embedded in the ROM), and the Compaq Public key. The PKI mechanisms will ensure that if the image was tampered with, the decrypted image will be invlaid.

Today's systems have a fairly small ROM image compared to the amount of RAM that is available so the downloaded ROM image can exist in RAM and the ROM can self upgrade.

In an Enterprise, a Compaq ROM Update Service can be installed on the Intranet and all systems can be set up to connect to the WAN service rather than the Compaq Service on the Internet. This will ensure that the IT department maintains a tight control on the ROMs that are updated.

SOAP Packet Example:

```
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">

<SOAP-ENV:Body>
<m:ROMInfo xmlns:m="ROMUpdateInfo">
      <ROMFamily>686T3</ROMFamily>
      <SystemSerialNumber>1234SomeSerialNumber</SystemSerialNumber>
      <ROMDate>062101</ROMDate>
      other necessary information in XML form
</m:ROMInfo>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

H.   Describe the construction and structure of the preferred implementation of the invention.
     I presented the information in section G. above.

From: ███████ ████████████

Sent: Monday, December 10, 2001 11:07 AM

To: Crisan, Adrian; Burckhartt, David; Patent Pros

Cc: Michael Heim; Jon Harris

Subject: ████████1ST DRAFT OF APPLICATION (████████ ▶

Importance: High

U.S. Patent Application No.: NOT YET FILED
Formal Title: Hardware ROM Upgrade Through An Internet
              Or Intranet Service
Inventors: Adrian Crisan and David Burckhartt
Group: ████ ████████ ████████████
CPQ Ref. No.: ████████
Our Ref. No.: ████████
Resp. Atty.: ██████████

Attached is the initial draft of a patent application on the
above-identified invention. The inventors should ready the application over
carefully, checking it against the drawings. They should be sure that the
best mode of making and using the invention is completely and accurately
described in the application. They should also review the claims so that we
can be sure that the claims accurately define the invention for which Compaq
seeks patent protection.

A careful review of the application now will pay dividends in the future.
After the inventors have completed their review, they should provide Jon
Harris with their comments either orally @ ████████████, in writing or by
return email so that the comments may be incorporated into the application.
The comments cannot be too extensive. Please use the "track changes" tool
when making revisions to the attached document.

Also, please confirm your name, residential address and citizenship status
on the cover page of the application.

We have been asked to file this application by December 27, 2001.
Therefore, we would appreciate receiving the comments as soon as reasonably
possible and preferably no later than December 17, 2001.

<<PAT APP 1662-55100_v1.DOC>> <<DWG FIGS.pdf>>

████████████
Legal Assistant
CONLEY, ROSE & TAYON, P.C.
Houston Office
Main No.: ██████████

9/22/2006

Fax No.:
Direct Dial:

9/22/2006

EXHIBIT___C___
PAGE__/_OF__/__

1662-55100 (P01-3806)

PTO/SB/01A (10-00)
Approved for use through 10/31/2002. OMB 0651-0032
U.S Patent and Trademark Office; U S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

As below named inventor(s), I/we declare that:

This declaration is directed to:

☒   The attached application, or

☐   Application No.   , filed on   .

☐   as amended on   (if applicable);

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;
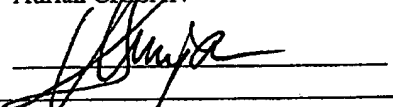
I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including material information which became available between the filing date of the prior application and the National or PCT International filing date of the continuation-in-part application, if applicable; and

All statements made herein of my/own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

FULL NAME OF INVENTOR(S)

Inventor one: Adrian CRISAN	Date:	December 17th, 2001
Signature:	Citizen of:	U.S.A.
Inventor two: David BURCKHARTT	Date:	12-17-2001
Signature:	Citizen of:	U.S.A.
Inventor three:	Date:	
Signature:	Citizen of:	
Inventor four:	Date:	
Signature:	Citizen of:	

☐   Additional inventors are being named on _____ additional form(s) attached hereto.

63469.01/1662.55100